



**Water Harvesting
Controls Sediment
and Prevents Flooding**

by

Van Clothier

September 21, 2016

Saltillo, Coahuila

Mexico

An aerial photograph of a meandering river in a dry, yellowish-brown landscape. The river flows from the top left towards the bottom center, curving back and forth. The surrounding terrain is sparse with low-lying vegetation. The sky is a pale, hazy blue.


LET THE WATER DO THE WORK:

**Induced Meandering,
an Evolving Method
for Restoring
Incised Channels**

**Bill Zeedyk
and Van Clothier**

\$50

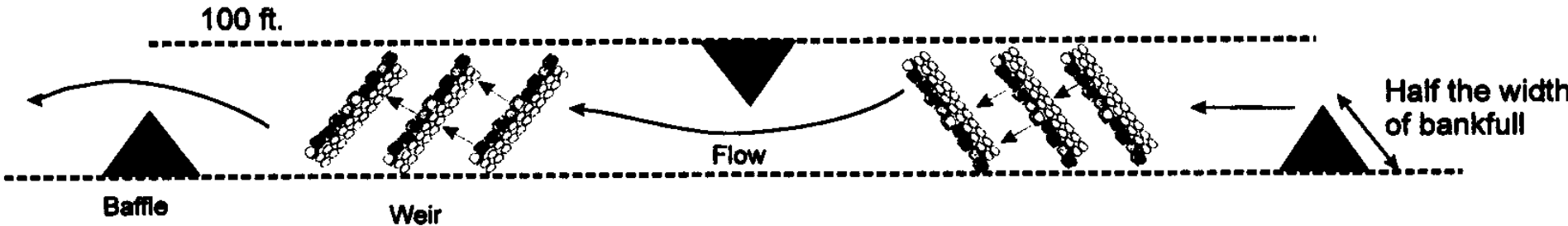
McSRAW
2009

An aerial photograph of a meandering river in a dry, yellowish-brown landscape. The river flows from the top left towards the bottom center, curving back and forth. The surrounding terrain is sparse with low-lying vegetation. The sky is a pale, hazy blue.

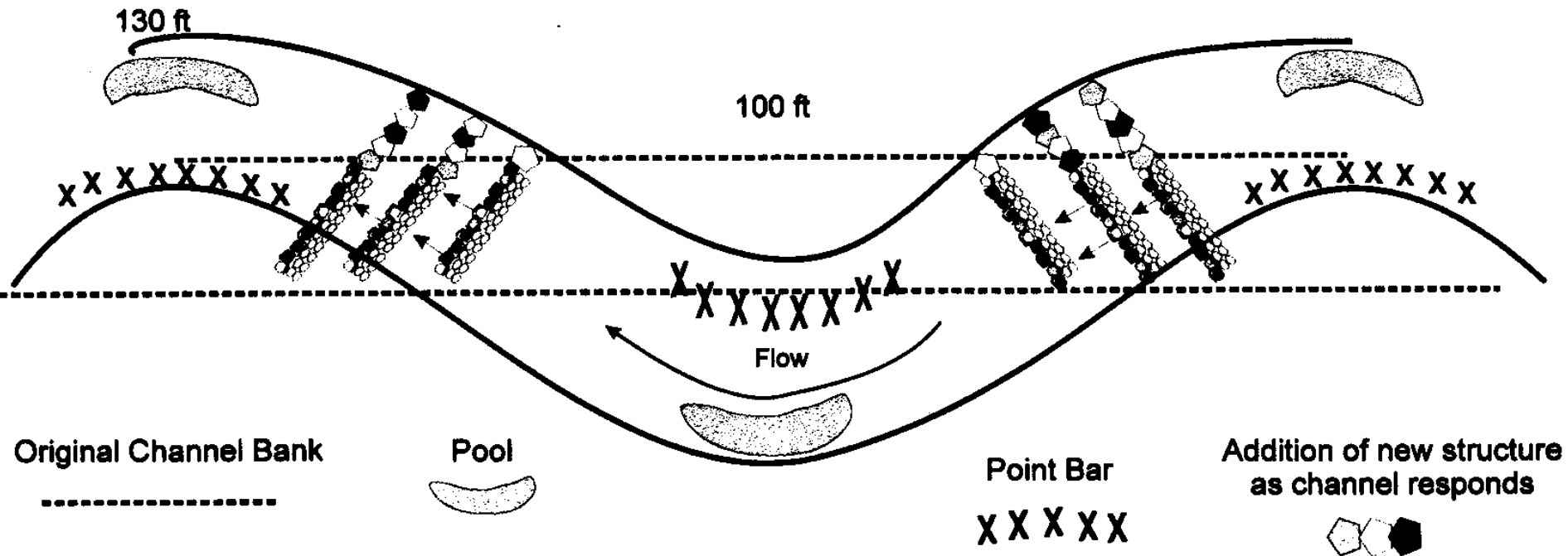
Available at
www.streamdynamics.us

Placement of Structures

Before: Incised channel with a bankfull width of 10 feet and a channel length of 100 ft.



After: Meandering channel with a bankfull width of 13 ft and a channel length of 130 ft.





Oct 13, 2005



Aug 27, 2006



Aug 27, 2007

Vegetated banks prevent the release of sediment and capture sediment during floods.

Aug 28, 2010



April 29, 2016



Aug 1, 2016





June 29, 2016

Concentrated flows
transport sediment.

Increased runoff from Impervious Surfaces goes down the street, eroding the street and moving the sediment down slope.



**The Engineering Solution:
Route the water and sediment
directly to the nearest stream.**



DON'T POLLUTE

NO CONTAMINE!



FLOWS TO WATERWAYS



Silver City, New Mexico
Population 10,400

Street Department Storm Cleanup costs:

\$10,000 for average thunderstorm

\$60,000 or more for a severe storm

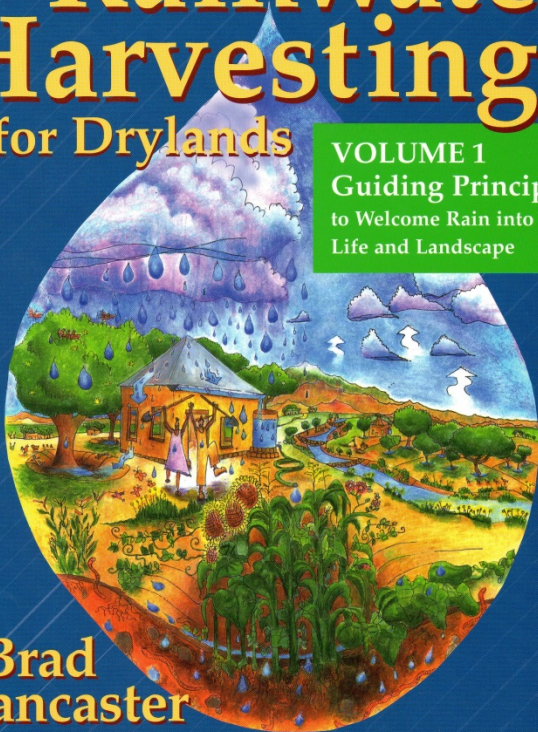
This does not include:

private flood damage or public safety



Rainwater Harvesting for Drylands

VOLUME 1
Guiding Principles
to Welcome Rain into Your
Life and Landscape



Brad
Lancaster

Foreword by Gary Paul Nabhan

Rainwater Harvesting for Drylands and Beyond

VOLUME 2
Water-Harvesting
Earthworks



Brad
Lancaster

Foreword by Andy Lipkis

Available from www.harvestingrainwater.com

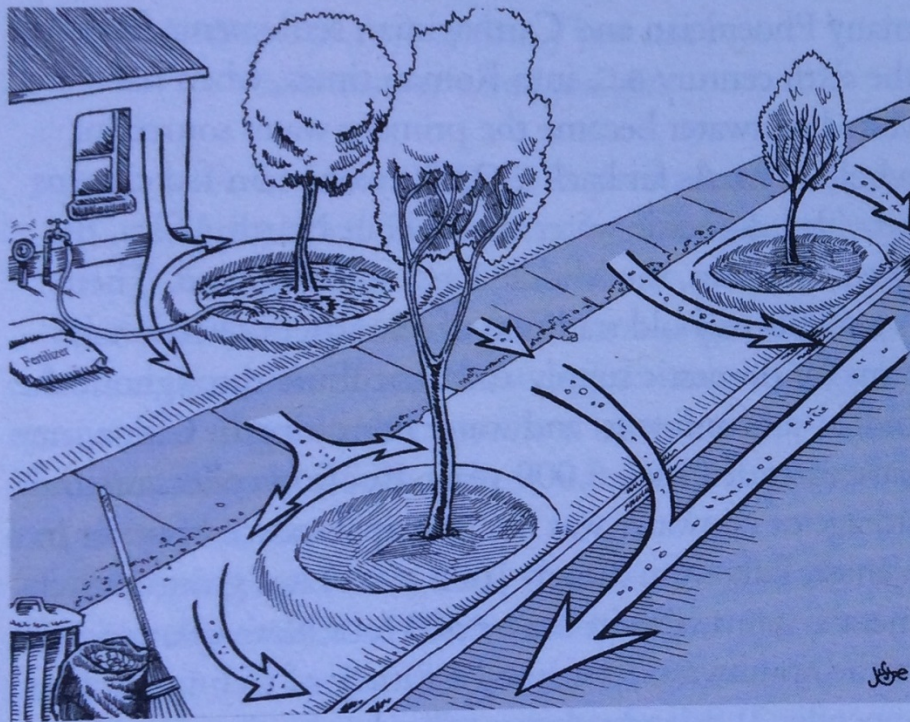


Fig. I.4A. A landscape on the wasteful path to *scarcity*. Rain, runoff, and topsoil are quickly drained off the landscape to the street where the sediment-laden water contributes to downstream flooding and contamination. The landscape is dependent upon municipal/well water irrigation and imported fertilizer.

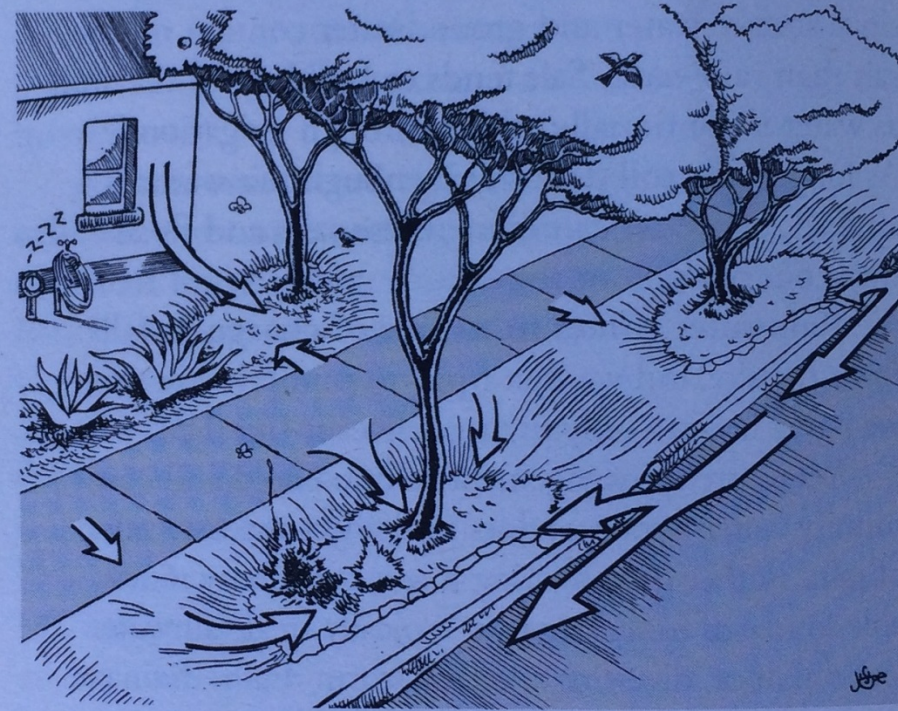


Fig. I.4B. A landscape on the stewardship path to *abundance*. Rain, runoff, leaf drop, and topsoil are harvested and utilized within the landscape contributing to flood control and enhanced water quality. The system is self-irrigating with rain and self-fertilizing with harvested organic matter.

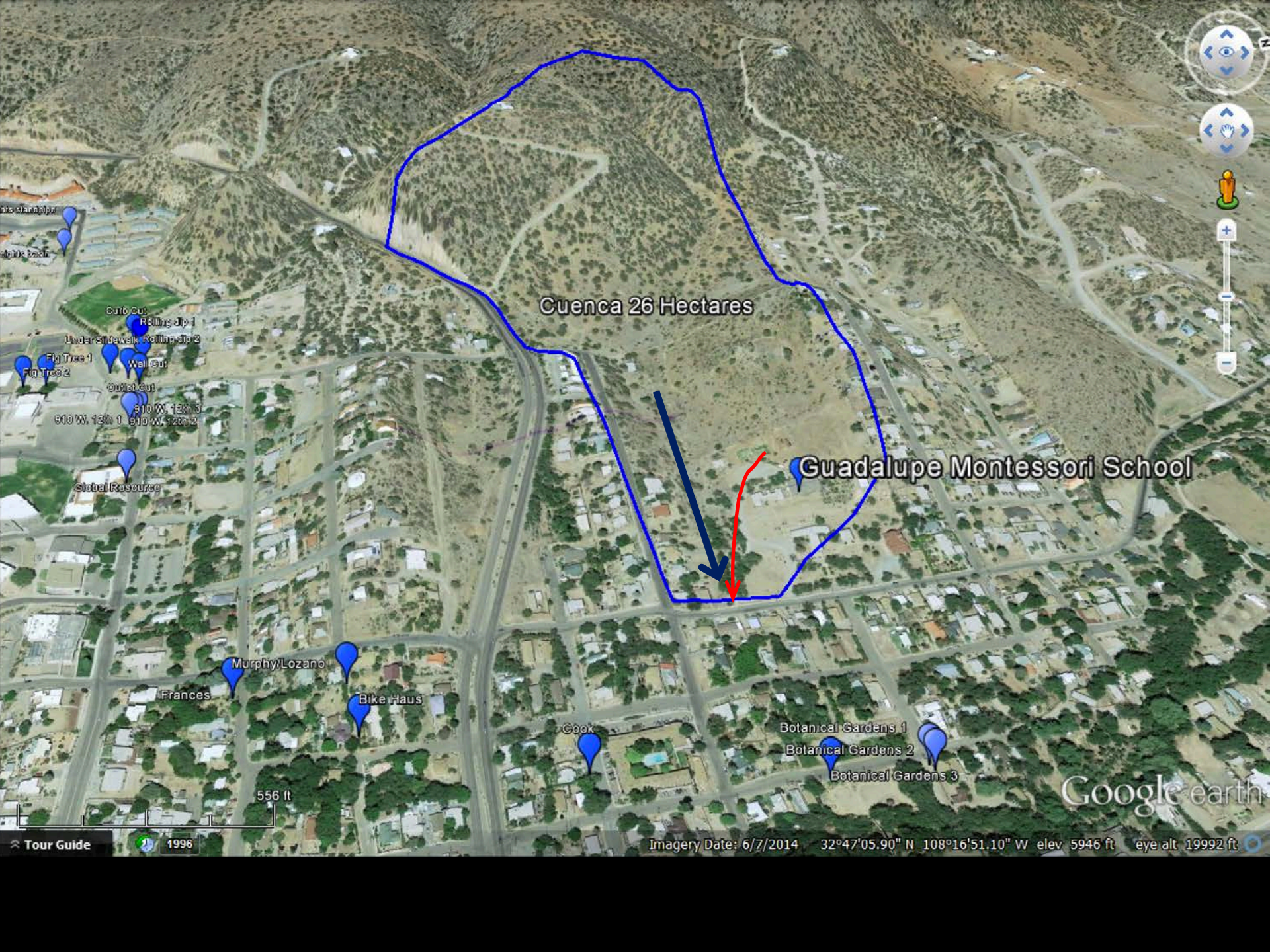


Removal of impervious surfaces









Cuenca 26 Hectares

Guadalupe Montessori School

Google earth





Guadalupe Montessori School Access and Drainage Design concept by Stream Dynamics, Inc.



5.00 ft. Utility Easement

POB
W1/4 Corner of Section 34 bears
N42° 40' 29"W, 923.03 ft. distant

Legend

Vehicle Barrier

Green Space

Bike and pedestrian path

Water Harvesting Drainage

Short term parking

Student Drop-off and Pick-up

Long term parking

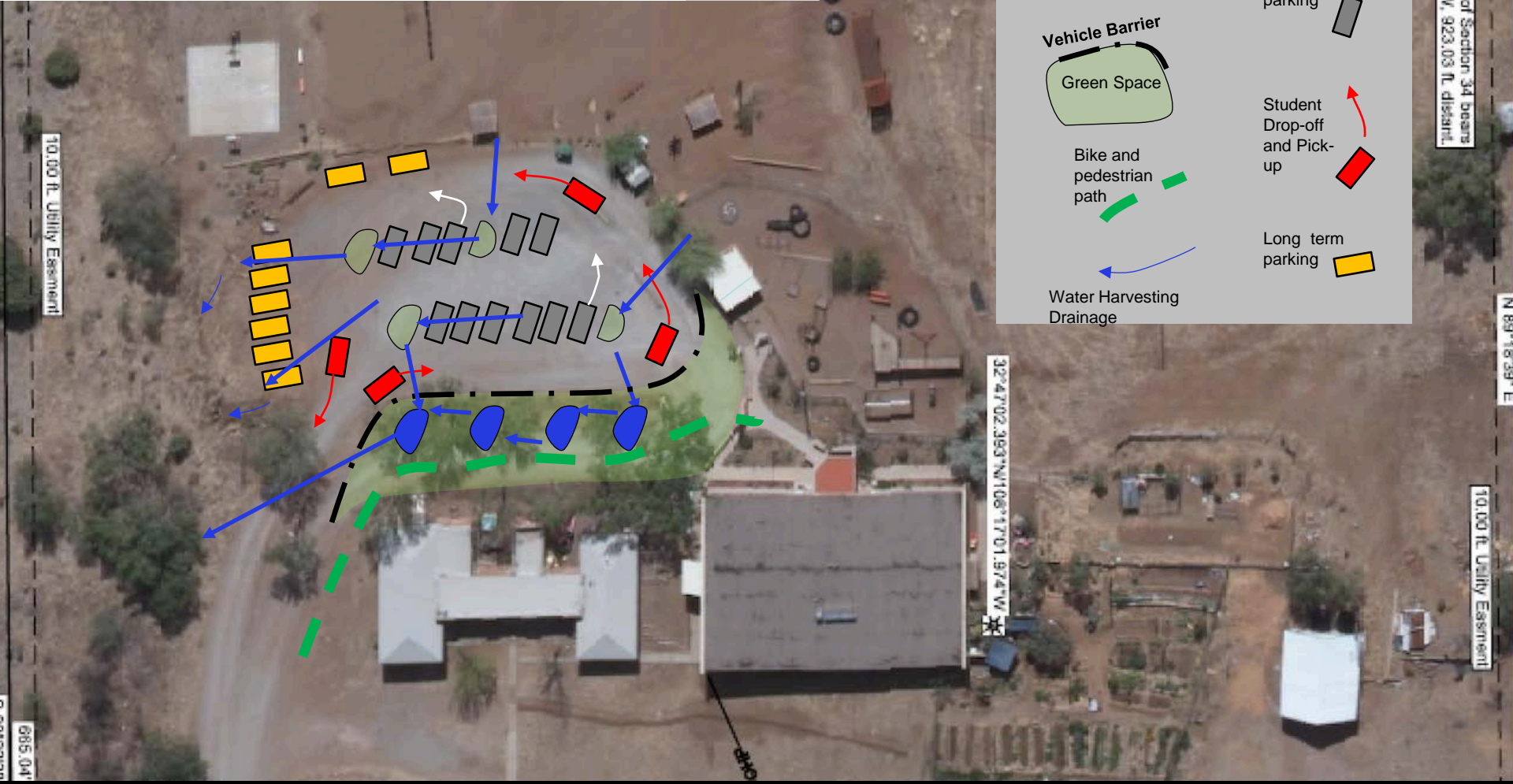
10.00 ft. Utility Easement

32° 47' 02.393" N 108° 17' 01.974" W

N 89° 18' 39" E

10.00 ft. Utility Easement

085.04'







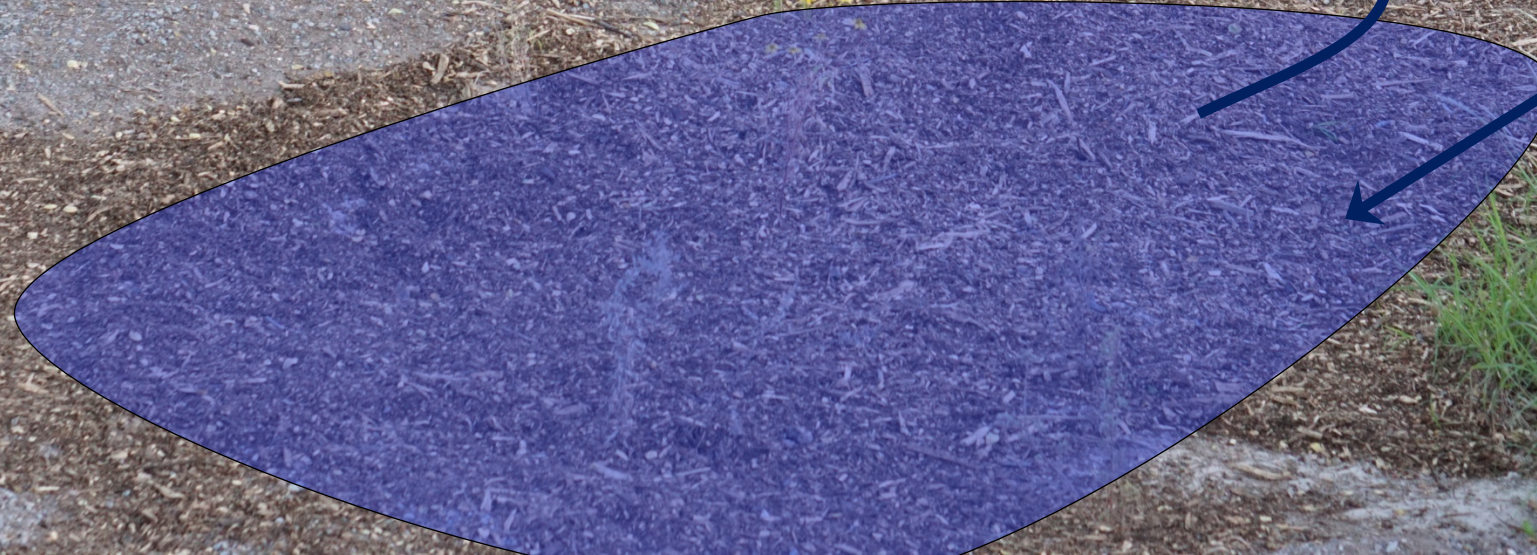
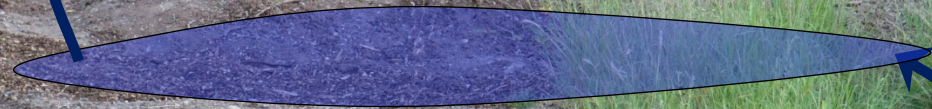
















Show Video of
Flood



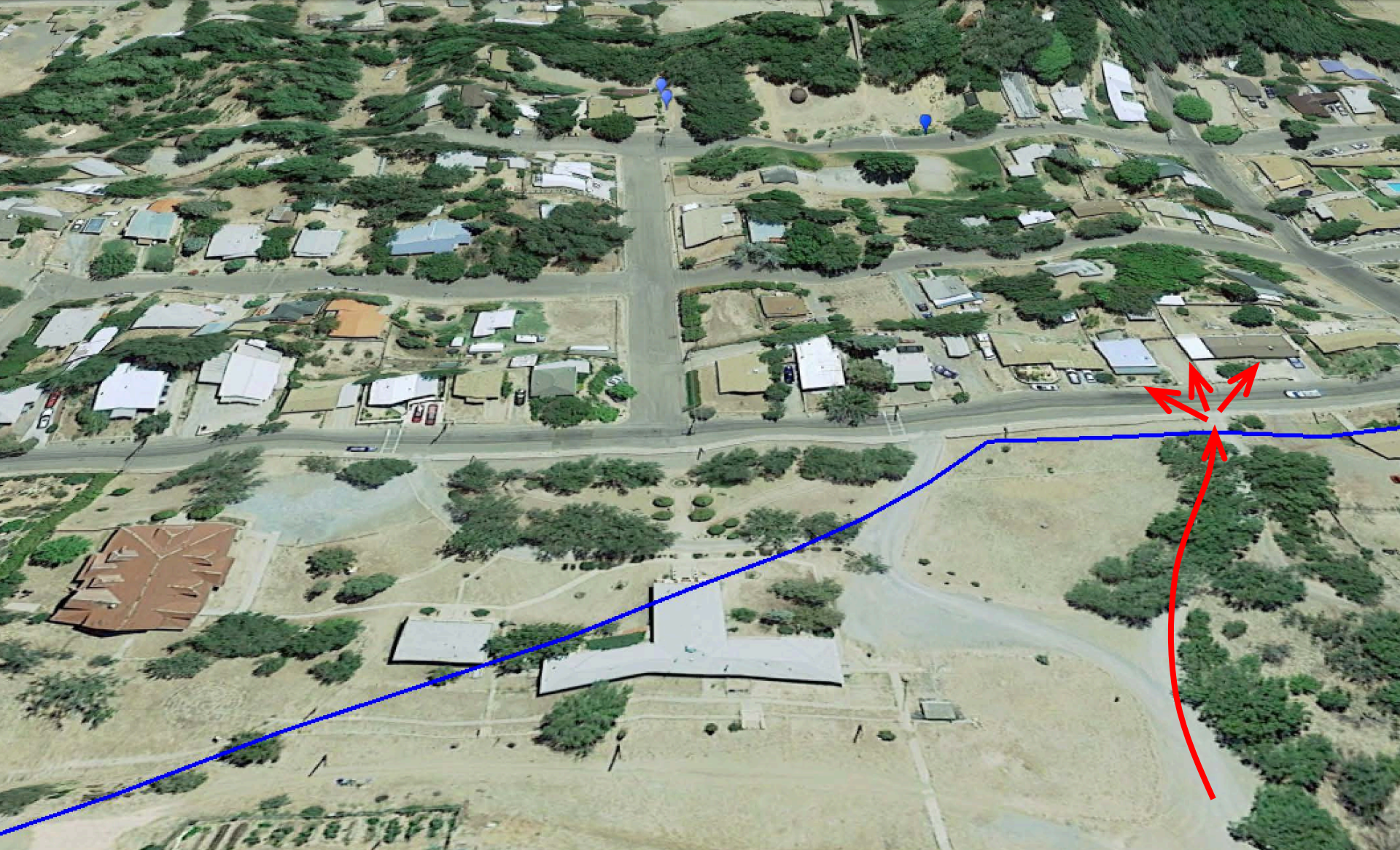






01:33





Guadalupe Montessori School 

74 ft



Silva Creek Botanical Gardens

Guadalupe Montessori School





SIL
TANN



**Wetland Sod:
Living, Self-Repairing Riprap**





Sod Storage

Aug 8, 2012



Aug 16, 2014

A photograph of a stream with a rocky bank. The stream flows from the right towards the left. The bank is composed of large, light-colored rocks. The water is clear and reflects the sky and trees. The background shows a hillside with sparse vegetation and a utility pole.

Stream Bank Protection and Grade Control to protect a sewer line

July 12, 2014



Aug 26, 2014